MAKE IT COUNT!

EFFICIENT NUTRIENT USE

ace
Aparima Community Environment

ABOUT THE EVENT

Fertiliser is one of the three highest costs on farm come hear about how to get the most from your fertiliser spend

Discussion will include:

* Sheep and Dairy case studies
* The effect timing and rate of fertilisers on pasture growth and nutrient losses.
* The effect of trace minerals such as Molybdenum.
* Plus crop fertiliser requirements, and tests available to assist with creating crop fertiliser plans.
* Future use of nutrients, relation to soil test and nutrient recommendations.

SPEAKERS

Deane Carson - Agribusiness
Jim Risk - Ballance Agri Nutrients
Vaughan Templeton – Regional Forum

FIELD DAY EVENT

Applicable for Dry stock & Dairy

10.00 - 1.00pm
8th December 2021

LOCATION:

Wayne & Heather Hopcroft

434 Riverton-Otautau Rd

TO REGISTER:

rachael@thrivingsouthland.co.nz
Light lunch provided

www.thrivingsouthland.co.nz/ace

environment SOUTHLAND REGIONAL COUNCIL Te Taiao Tonga
DairyNZ
Fonterra Dairy for life
beef+lamb new zealand

2020/21 Farm Review

Bellview

	Average	Top Farm	2020/21	2019/20	2018/19	2017/18	2016/17
Final Production (kgMS)	15154834	252,300	352607	340258	352574	335110	307795
Effective Milking Area (ha)	9814	141.5	237.7	243	240.15	234.52	231.83
Stock Numbers/Weights							
Cows Wintered	31574	447	836	839	834	774	769
Cows at Peak	30283	439	787	781	781	745	739
Change Winter-Peak (%)	4.09%	1.8%	5.9%	6.9%	6.4%	3.7%	3.9%
SR Wintered	3.22	3.2	3.5	3.5	3.5	3.3	3.3
SR at Peak	3.09	3.1	3.3	3.21	3.25	3.18	3.2
June 2019 Weights	497	530.0	463.0	463.0	439.0	439.0	430.0
LW/ha	1534	1644.3	1532.9	1488.1	1427.7	1394.6	1370.7
KgMS/KGLW	1.01	1.08	0.97	0.94	1.03	1.02	0.97
KgLW/TDM Consumed	86.2	79.1	89.0	95.2	80.4	79.4	78.9
Herd BW	113		133.0	130.0	90.0	92.0	82.0
Herd PW	138		178	173	137	128	109
Production							
KgMS/ha	1544	1783	1483	1400	1468	1429	1328
KgMS/cows at peak	500	575	448	436	451	450	417
KgMS/cow wintered	480	564	422	406	423	433	400
Mating							
Empties	3871	57	132	136	120	80	113
Empty %	12.9%	13.0%	16.8%	17.4%	15.4%	10.7%	15.3%
6 Week in-calf Rate	71.4%	70.0%	66.3%	68.0%	72.6%		
Mating Interval (Weeks)	10.2	11	9.4	11	9.9	9.7	10.1
Total Cow Wastage	16.3%	14.5%	21.7%	23.1%	20.7%	14.1%	18.6%
Feed							
Silage at start	9130479	34500	109400	190080	156290	157080	124000
+ silage bought	15160985	23920	208000	363560	268320	246990	284210
+ silage made	3306350	127420	9430	28290	62330	82900	42320
- silage at end	17077415	118680	183430	273850	184330	275530	275530
= silage fed	10520399	67160	143400	308080	302610	211440	175000
Silage fed per cow	347	153	182	394	387	284	237
Silage per KgMS	0.7	0.3	0.4	0.9	0.9	0.6	0.6
Nitrogen Applied (kgN/ha)	192	221.1	205	217	165	201.6	150
Nitrogen Response @ 10:1	18797932	312856.5	487285	527310	396247.5	472792.32	347745
Concentrates Bought							
Molasis t	576	0	0	0	0	0	0
Barley/DDG/CGM	13982	341	205	243	172.86	118	0
Palm Kern t	10925	225	385	331	266	226	161
Concentrates fed per cow	731	1122	662	646	495	408	196
Concentrates per KgMS	1.46	1.95	1.48	1.48	1.10	0.91	0.47
Total Bought Milking Feed kgDM	44855044	617526.5	1132575	1283260	960528.5	822132.32	583005
Total Bought Feed /cow	1481	1407	1439	1643	1230	1104	789
Total Bought Feed/kgMS	3.0	2.4	3.2	3.8	2.7	2.5	1.9
Feed Required For Milk Production @ 12kgDM/kgMS	181858008	3027600	4231284	4083096	4230888	4021320	3693540
Feed Required For Drystock	0	0	0	0	0	0	0
Less Bought In Feed	44855044	617526.5	1132575	1283260	960528.5	822132.32	583005
Leaves Pasture Utilised	137002964	2410073.5	3098709	2799836	3270359.5	3199187.7	3110535
Utilised Pasture/ha	13960	17032	13036	11522	13618	13641	13417
Utilised Pasture/kgMS	9.04	9.55	8.79	8.23	9.28	9.55	10.11
Financial Analysis/hectare							
Income Milk @ $7.55/kgMS	$11,700.54	$13,461.94	$11,199.76	$10,571.80	$9,322.69	$10,788.34	$10,023.95
Adj. for cull cows @ $1000	-$1.44	$50.76	-$186.47	-$244.76	-$116.42	$66.35	-$60.33
Total	$11,699.10	$13,512.70	$11,013.29	$10,327.04	$9,206.27	$10,854.69	$9,963.62
Variable Feed Costs							
Silage Bought Off @ 32c	$479.25	$54.09	$280.02	$478.76	$357.54	$315.95	$387.78
Made On @ 12c	$41.77	$108.06	$4.76	$13.97	$31.15	$42.42	$21.91
Fed Out @ 5c	$52.10	$23.73	$30.16	$63.39	$63.00	$45.08	$37.74
Change in inventory	-$257.21	-$190.37	-$99.66	-$110.31	-$37.36	-$161.62	-$209.16
Concentrates @ 7c	$939.21	$1,482.16	$840.50	$835.28	$620.62	$474.03	$156.26
Nitrogen @ 18c	$344.79	$397.98	$369.00	$390.60	$250.80	$292.32	$217.50
Less feed fed to drystock @ 19c	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Feed Costs	$1,599.92	$1,875.65	$1,424.78	$1,671.69	$1,285.74	$1,008.18	$592.03
Net Margin	**$10,099.18**	**$11,637.05**	**$9,588.51**	**$8,655.35**	**$7,920.53**	**$9,846.51**	**$9,371.59**
Est Capital Invested							
Est Margin Return On Capital							

agri-nutrients Ballance

Hill Laboratories
TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Bellevue Dairies Limited	**Lab No:**	2659118 s2chpv1
Address:	435 Riverton Otautau Road RD 3, Gummies Bush Riverton 9883	**Date Received:**	20-Jul-2021
		Date Reported:	27-Jul-2021
		Quote No:	
		Order No:	
		Client Reference:	4003805
Phone:	03 234 8866	**Submitted By:**	Ben Finn

Soil Analysis Results

Sample Name:	Soil Sample Depth*† mm	pH pH Units	Olsen Phosphorus mg/L	Sulphate Sulphur mg/kg	Potassium MAF units	Calcium MAF units	Magnesium MAF units	Sodium MAF units
2	0-75	5.9	39	10	6	11	28	10
5	0-75	5.9	34	9	7	8	20	8
11	0-75	6.2	36	9	7	10	25	10
16	0-75	6.2	32	4	6	10	26	8
21	0-75	6.0	42	13	6	13	24	10
23	0-75	5.9	25	19	10	7	20	9
34	0-75	6.4	16	12	12	10	17	8
35	0-75	6.0	29	12	6	10	26	9
38	0-75	6.0	34	7	7	9	20	10
45	0-75	6.2	35	12	6	11	27	9
48	0-75	6.0	21	11	7	7	15	6
55	0-75	6.1	27	11	8	12	23	9
62	0-75	6.0	50	9	7	11	31	9
69	0-75	5.9	34	11	10	10	21	12

Sample Name:	Extractable Organic Sulphur* mg/kg							
2	9	-	-	-	-	-	-	-
5	8	-	-	-	-	-	-	-
11	10	-	-	-	-	-	-	-
16	8	-	-	-	-	-	-	-
21	9	-	-	-	-	-	-	-
23	10	-	-	-	-	-	-	-
34	9	-	-	-	-	-	-	-
35	10	-	-	-	-	-	-	-
38	11	-	-	-	-	-	-	-
45	9	-	-	-	-	-	-	-
48	10	-	-	-	-	-	-	-
55	8	-	-	-	-	-	-	-
62	7	-	-	-	-	-	-	-
69	9	-	-	-	-	-	-	-

ilac-MRA ACCREDITED IANZ TESTING LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Ballance agri-nutrients

Hill Laboratories
TRIED, TESTED AND TRUSTED
R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Bellevue Dairies Limited	**Lab No:**	2659118	s2chpv1
Address:	435 Riverton Otautau Road RD 3, Gummies Bush Riverton 9883	**Date Received:**	20-Jul-2021	
		Date Reported:	27-Jul-2021	
		Quote No:		
		Order No:		
		Client Reference:	4003805	
Phone:	03 234 8866	**Submitted By:**	Ben Finn	

Soil Analysis Results

Sample Name: 2
Lab Number: 2659118.1
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	5.9	5.8 - 6.2		
Olsen Phosphorus	mg/L	39	20 - 30		
Potassium	MAF units	6	6 - 8		
Calcium	MAF units	11	4 - 10		
Magnesium	MAF units	28	8 - 10		
Sodium	MAF units	10			
Sulphate Sulphur	mg/kg	10	10 - 12		
Extractable Organic Sulphur*	mg/kg	9	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 1.8	Ca 49	Mg 7.2	Na 1.3	
me/100g	K 0.38	Ca 10.4	Mg 1.52	Na 0.26	
Additional Properties	Cation Exchange Capacity (me/100g)				21
	Total Base Saturation (%)				60
	Volume Weight (g/mL)				0.82
Soil Type*†	Sedimentary				

Sample Name: 5
Lab Number: 2659118.2
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	5.9	5.8 - 6.2		
Olsen Phosphorus	mg/L	34	20 - 30		
Potassium	MAF units	7	6 - 8		
Calcium	MAF units	8	4 - 10		
Magnesium	MAF units	20	8 - 10		
Sodium	MAF units	8			
Sulphate Sulphur	mg/kg	9	10 - 12		
Extractable Organic Sulphur*	mg/kg	8	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 2.2	Ca 43	Mg 5.6	Na 1.1	
me/100g	K 0.40	Ca 7.9	Mg 1.03	Na 0.20	
Additional Properties	Cation Exchange Capacity (me/100g)				18
	Total Base Saturation (%)				52
	Volume Weight (g/mL)				0.85
Soil Type*†	Sedimentary				

Sample Name: 11
Lab Number: 2659118.3
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.2	5.8 - 6.2		
Olsen Phosphorus	mg/L	36	20 - 30		
Potassium	MAF units	7	6 - 8		
Calcium	MAF units	10	4 - 10		
Magnesium	MAF units	25	8 - 10		
Sodium	MAF units	10			
Sulphate Sulphur	mg/kg	9	10 - 12		
Extractable Organic Sulphur*	mg/kg	10	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 1.9	Ca 49	Mg 6.7	Na 1.3	
me/100g	K 0.39	Ca 10.1	Mg 1.38	Na 0.26	
Additional Properties	Cation Exchange Capacity (me/100g)				21
	Total Base Saturation (%)				59
	Volume Weight (g/mL)				0.82
Soil Type*†	Sedimentary				

Sample Name: 16
Lab Number: 2659118.4
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.2	5.8 - 6.2		
Olsen Phosphorus	mg/L	32	20 - 30		
Potassium	MAF units	6	6 - 8		
Calcium	MAF units	10	4 - 10		
Magnesium	MAF units	26	8 - 10		
Sodium	MAF units	8			
Sulphate Sulphur	mg/kg	4	10 - 12		
Extractable Organic Sulphur*	mg/kg	8	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 2.0	Ca 53	Mg 8.0	Na 1.2	
me/100g	K 0.32	Ca 8.6	Mg 1.30	Na 0.20	
Additional Properties	Cation Exchange Capacity (me/100g)				16
	Total Base Saturation (%)				65
	Volume Weight (g/mL)				0.89
Soil Type*†	Sedimentary				

agri-nutrients Ballance

Hill Laboratories
TRIED, TESTED AND TRUSTED
R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Bellevue Dairies Limited	**Lab No:**	2659118 s2chpv1
Address:	435 Riverton Otautau Road RD 3, Gummies Bush Riverton 9883	**Date Received:**	20-Jul-2021
		Date Reported:	27-Jul-2021
		Quote No:	
		Order No:	
		Client Reference:	4003805
Phone:	03 234 8866	**Submitted By:**	Ben Finn

Soil Analysis Results

Sample Name: 21
Lab Number: 2659118.5
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.0	5.8 - 6.2		
Olsen Phosphorus	mg/L	42	20 - 30		
Potassium	MAF units	6	6 - 8		
Calcium	MAF units	13	4 - 10		
Magnesium	MAF units	24	8 - 10		
Sodium	MAF units	10			
Sulphate Sulphur	mg/kg	13	10 - 12		
Extractable Organic Sulphur*	mg/kg	9	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 1.5	Ca 52	Mg 5.4	Na 1.1	
me/100g	K 0.36	Ca 12.4	Mg 1.29	Na 0.27	
Additional Properties	Cation Exchange Capacity (me/100g)				24
	Total Base Saturation (%)				61
	Volume Weight (g/mL)				0.81
Soil Type*†	Sedimentary				

Sample Name: 23
Lab Number: 2659118.6
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	5.9	5.8 - 6.2		
Olsen Phosphorus	mg/L	25	20 - 30		
Potassium	MAF units	10	6 - 8		
Calcium	MAF units	7	4 - 10		
Magnesium	MAF units	20	8 - 10		
Sodium	MAF units	9			
Sulphate Sulphur	mg/kg	19	10 - 12		
Extractable Organic Sulphur*	mg/kg	10	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 3.3	Ca 41	Mg 6.1	Na 1.3	
me/100g	K 0.55	Ca 6.6	Mg 1.00	Na 0.22	
Additional Properties	Cation Exchange Capacity (me/100g)				16
	Total Base Saturation (%)				52
	Volume Weight (g/mL)				0.89
Soil Type*†	Sedimentary				

Sample Name: 34
Lab Number: 2659118.7
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.4	5.8 - 6.2		
Olsen Phosphorus	mg/L	16	20 - 30		
Potassium	MAF units	12	6 - 8		
Calcium	MAF units	10	4 - 10		
Magnesium	MAF units	17	8 - 10		
Sodium	MAF units	8			
Sulphate Sulphur	mg/kg	12	10 - 12		
Extractable Organic Sulphur*	mg/kg	9	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 3.7	Ca 50	Mg 4.8	Na 1.2	
me/100g	K 0.68	Ca 9.2	Mg 0.87	Na 0.21	
Additional Properties	Cation Exchange Capacity (me/100g)				18
	Total Base Saturation (%)				60
	Volume Weight (g/mL)				0.86
Soil Type*†	Sedimentary				

Sample Name: 35
Lab Number: 2659118.8
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.0	5.8 - 6.2		
Olsen Phosphorus	mg/L	29	20 - 30		
Potassium	MAF units	6	6 - 8		
Calcium	MAF units	10	4 - 10		
Magnesium	MAF units	26	8 - 10		
Sodium	MAF units	9			
Sulphate Sulphur	mg/kg	12	10 - 12		
Extractable Organic Sulphur*	mg/kg	10	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 1.6	Ca 47	Mg 7.0	Na 1.1	
me/100g	K 0.34	Ca 9.8	Mg 1.46	Na 0.24	
Additional Properties	Cation Exchange Capacity (me/100g)				21
	Total Base Saturation (%)				57
	Volume Weight (g/mL)				0.80
Soil Type*†	Sedimentary				

Hill Laboratories
TRIED, TESTED AND TRUSTED
R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Bellevue Dairies Limited	**Lab No:**	2659118 s2chpv1
Address:	435 Riverton Otautau Road RD 3, Gummies Bush Riverton 9883	**Date Received:** **Date Reported:** **Quote No:** **Order No:**	20-Jul-2021 27-Jul-2021
		Client Reference:	4003805
Phone:	03 234 8866	**Submitted By:**	Ben Finn

Soil Analysis Results

Sample Name: 38
Lab Number: 2659118.9
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.0	5.8 - 6.2		
Olsen Phosphorus	mg/L	34	20 - 30		
Potassium	MAF units	7	6 - 8		
Calcium	MAF units	9	4 - 10		
Magnesium	MAF units	20	8 - 10		
Sodium	MAF units	10			
Sulphate Sulphur	mg/kg	7	10 - 12		
Extractable Organic Sulphur*	mg/kg	11	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 2.3	Ca 47	Mg 5.7	Na 1.4
me/100g	K 0.40	Ca 8.3	Mg 1.02	Na 0.26
Additional Properties	Cation Exchange Capacity (me/100g)			18
	Total Base Saturation (%)			56
	Volume Weight (g/mL)			0.86
Soil Type*†	Sedimentary			

Sample Name: 45
Lab Number: 2659118.10
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.2	5.8 - 6.2		
Olsen Phosphorus	mg/L	35	20 - 30		
Potassium	MAF units	6	6 - 8		
Calcium	MAF units	11	4 - 10		
Magnesium	MAF units	27	8 - 10		
Sodium	MAF units	9			
Sulphate Sulphur	mg/kg	12	10 - 12		
Extractable Organic Sulphur*	mg/kg	9	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 1.8	Ca 53	Mg 7.2	Na 1.2
me/100g	K 0.33	Ca 9.9	Mg 1.35	Na 0.23
Additional Properties	Cation Exchange Capacity (me/100g)			19
	Total Base Saturation (%)			63
	Volume Weight (g/mL)			0.88
Soil Type*†	Sedimentary			

Sample Name: 48
Lab Number: 2659118.11
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.0	5.8 - 6.2		
Olsen Phosphorus	mg/L	21	20 - 30		
Potassium	MAF units	7	6 - 8		
Calcium	MAF units	7	4 - 10		
Magnesium	MAF units	15	8 - 10		
Sodium	MAF units	6			
Sulphate Sulphur	mg/kg	11	10 - 12		
Extractable Organic Sulphur*	mg/kg	10	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 2.9	Ca 46	Mg 5.4	Na 1.1
me/100g	K 0.44	Ca 7.0	Mg 0.83	Na 0.17
Additional Properties	Cation Exchange Capacity (me/100g)			15
	Total Base Saturation (%)			55
	Volume Weight (g/mL)			0.82
Soil Type*†	Sedimentary			

Sample Name: 55
Lab Number: 2659118.12
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.1	5.8 - 6.2		
Olsen Phosphorus	mg/L	27	20 - 30		
Potassium	MAF units	8	6 - 8		
Calcium	MAF units	12	4 - 10		
Magnesium	MAF units	23	8 - 10		
Sodium	MAF units	9			
Sulphate Sulphur	mg/kg	11	10 - 12		
Extractable Organic Sulphur*	mg/kg	8	15 - 20		
Soil Sample Depth*†	mm	0-75			

Base Saturation %	K 2.5	Ca 58	Mg 6.2	Na 1.2
me/100g	K 0.53	Ca 12.6	Mg 1.35	Na 0.27
Additional Properties	Cation Exchange Capacity (me/100g)			22
	Total Base Saturation (%)			68
	Volume Weight (g/mL)			0.76
Soil Type*†	Sedimentary			

Ballance agri-nutrients

Hill Laboratories
TRIED, TESTED AND TRUSTED
R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Bellevue Dairies Limited	**Lab No:**	2659118	s2chpv1
Address:	435 Riverton Otautau Road RD 3, Gummies Bush Riverton 9883	**Date Received:**	20-Jul-2021	
		Date Reported:	27-Jul-2021	
		Quote No:		
		Order No:		
		Client Reference:	4003805	
Phone:	03 234 8866	**Submitted By:**	Ben Finn	

Soil Analysis Results

Sample Name: 62
Lab Number: 2659118.13
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

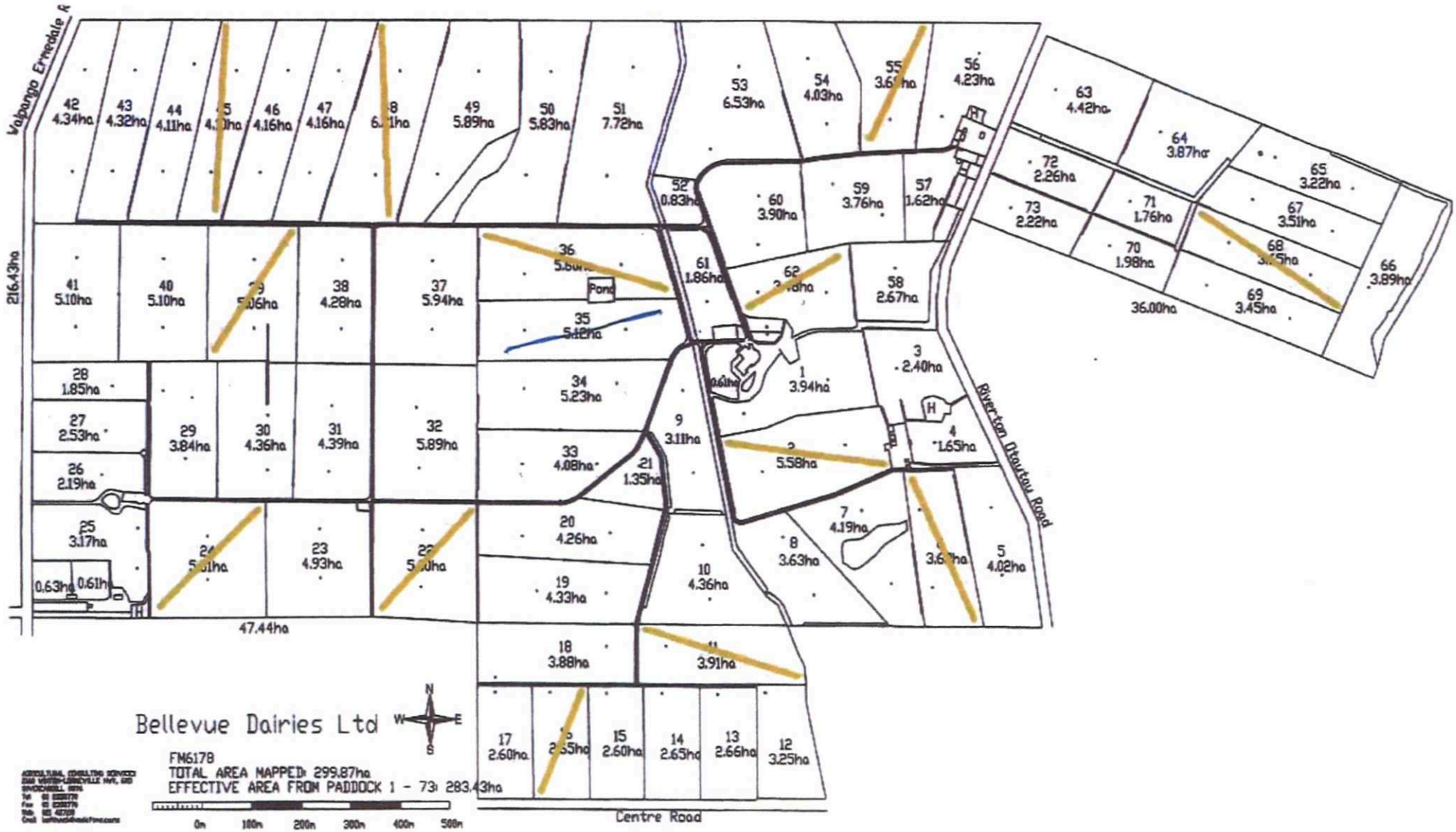
Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	6.0	5.8 - 6.2		
Olsen Phosphorus	mg/L	50	20 - 30		
Potassium	MAF units	7	6 - 8		
Calcium	MAF units	11	4 - 10		
Magnesium	MAF units	31	8 - 10		
Sodium	MAF units	9			
Sulphate Sulphur	mg/kg	9	10 - 12		
Extractable Organic Sulphur*	mg/kg	7	15 - 20		
Soil Sample Depth*†	mm	0-75			
Base Saturation %		K 2.0	Ca 51	Mg 7.9	Na 1.1
me/100g		K 0.41	Ca 10.4	Mg 1.59	Na 0.23
Additional Properties		Cation Exchange Capacity (me/100g)			20
		Total Base Saturation (%)			62
		Volume Weight (g/mL)			0.85
Soil Type*†		Sedimentary			

Sample Name: 69
Lab Number: 2659118.14
Sample Type: SOIL Mixed Pasture, Dairy (Sed.) (S181)

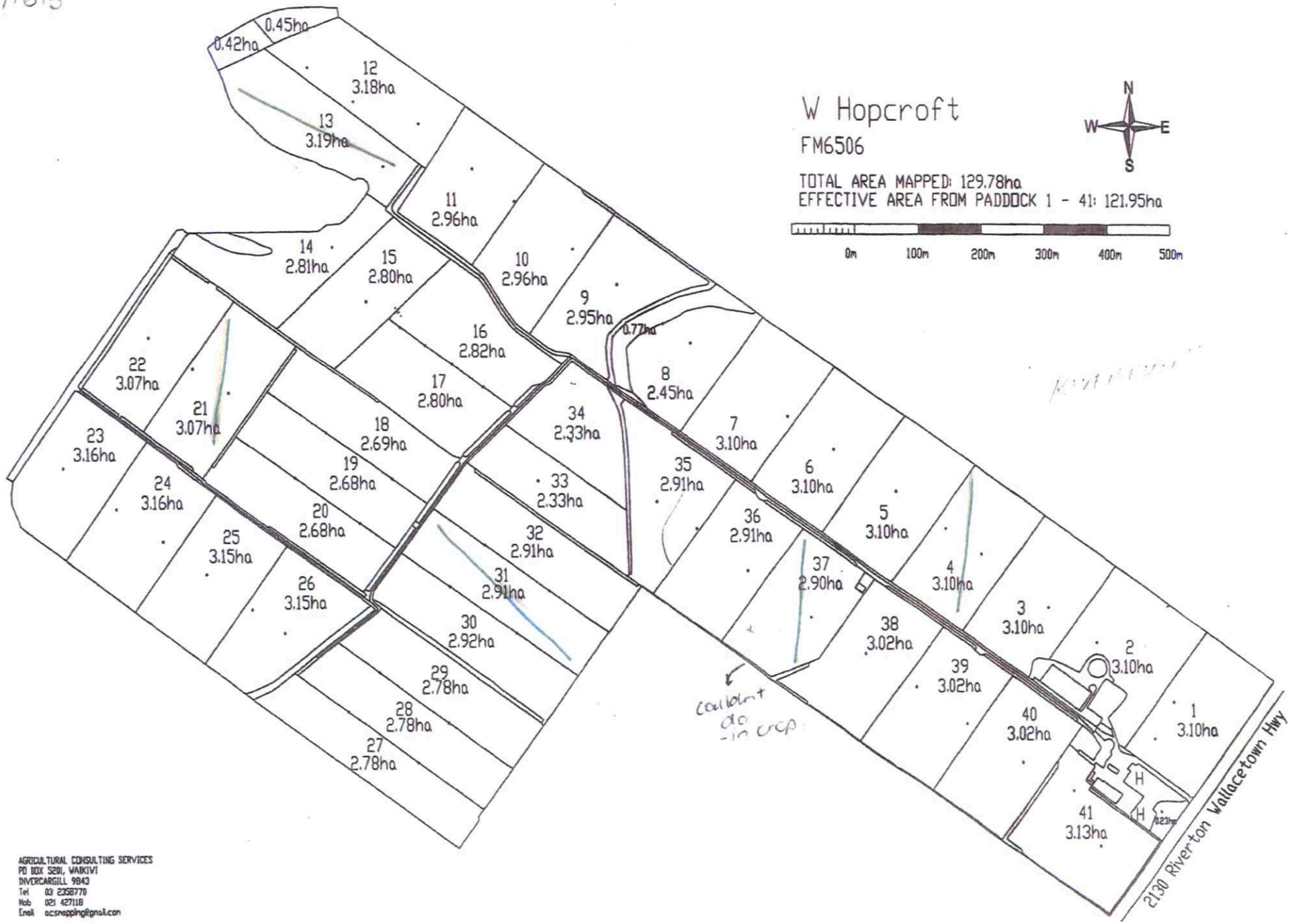
Analysis		Level	Optimum	Below Optimum	Above
pH	pH Units	5.9	5.8 - 6.2		
Olsen Phosphorus	mg/L	34	20 - 30		
Potassium	MAF units	10	6 - 8		
Calcium	MAF units	10	4 - 10		
Magnesium	MAF units	21	8 - 10		
Sodium	MAF units	12			
Sulphate Sulphur	mg/kg	11	10 - 12		
Extractable Organic Sulphur*	mg/kg	9	15 - 20		
Soil Sample Depth*†	mm	0-75			
Base Saturation %		K 2.9	Ca 49	Mg 5.5	Na 1.6
me/100g		K 0.58	Ca 9.9	Mg 1.11	Na 0.32
Additional Properties		Cation Exchange Capacity (me/100g)			20
		Total Base Saturation (%)			59
		Volume Weight (g/mL)			0.82
Soil Type*†		Sedimentary			

The above nutrient graph compares the levels found with reference interpretation levels. NOTE: It is important that the correct sample type be assigned, and that the recommended sampling procedure has been followed. R J Hill Laboratories Limited does not accept any responsibility for the resulting use of this information. IANZ Accreditation does not apply to comments and interpretations, i.e. the 'Range Levels' and subsequent graphs.

Soil testing transect lines



409613

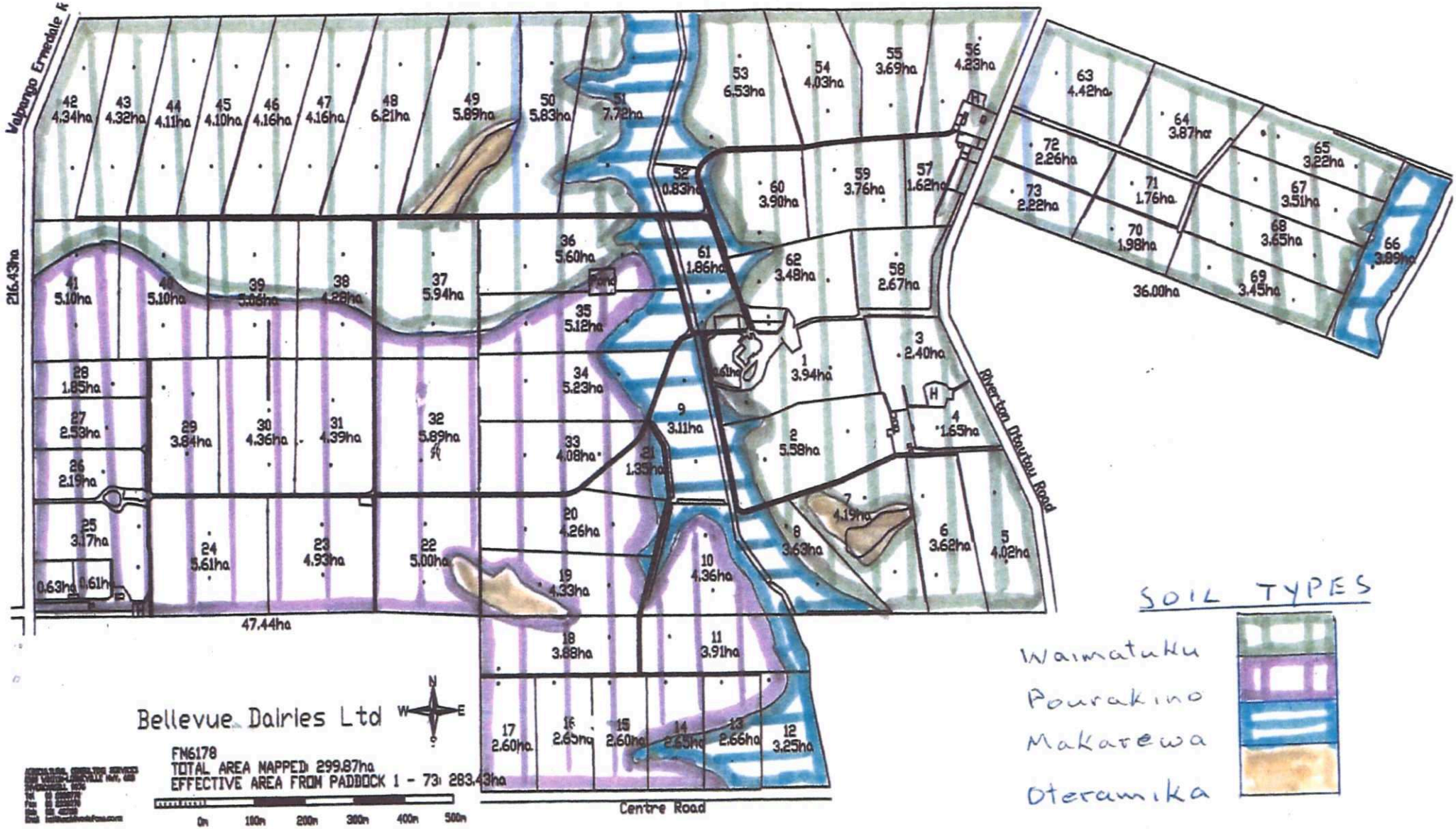


AGRICULTURAL CONSULTING SERVICES
PO BOX 5201, WAIKIVI
INVERCARGILL 9843
Tel 03 2358770
Mob 021 427118
Email acsmapping@gmail.com

MAP 1


Waipango Erewdale R
216.43ha
47.44ha
36.00ha
Riverton Rakeiora Road
Centre Road
Pond
Bellevue Dairies Ltd
FM6178
TOTAL AREA MAPPED 299.87ha
EFFECTIVE AREA FROM PADDOCK 1 - 73 283.43ha
0m 100m 200m 300m 400m 500m
N
S
E
W
Farm Slope Areas
undulating 0-7°
Rolling 7-15°
steep above 15°
Drainage channels

MAP 2


Valparaiso Ermedale R
216.43ha
47.44ha
Riverton Otautau Road
Centre Road
Bellevue Dairies Ltd
FM6178
TOTAL AREA MAPPED 299.87ha
EFFECTIVE AREA FROM PADDOCK 1 - 73 283.43ha
0m 100m 200m 300m 400m 500m
N
W
E
SOIL TYPES
Waimatuku
Pourakino
Makarewa
Oteramika

L3 Soil

DESCRIPTION:

The farm is dominated by brown soils comprising of the moderately well drained Waimatuku and Pourakino on the higher terraces and slopes. Shallow Oteramika soils are located on some of the steeper side slopes and poorly drained Makarewa soils on the flood plains of the major waterways. These are susceptible to structural compaction with treading but have a slight vulnerability to leaching.

Waimatuku (138ha)/ Puorakino (115ha) - undulating & rolling deep silt loam
+ high water holding capacity
+Moderately well drained
+Slight vulnerability to water logging & structural compaction with treading in wet conditions
+Slightly vulnerability to bypass flow when cracking develop (soils seldom dry)
+ Ponding & runoff can occur following heavy rain.

Makarewa (27ha)- undulating deep silt loam
+ High water holding capacity.
+ Poorly drained naturally that is improved with installed tiles.
+ Moderately susceptible to structural compaction with treading in wet conditions.
+ Moderately recovery of water infiltration following treading damage.
+Bypass flow is rare as soils very seldom dry when cracks develop.
+ Ponding and runoff can occur following heavy rain.
+ Slight vulnerability to leaching reflecting slow natural drainage and high water holding capacity.

Oteramika (3ha) shallow and moderately deep silt loam.
+Moderate water holding capacity.
+ Imperfectly drained with a tight subsoil.
+Moderate vulnerability of water logging.
+ Moderate vulnerability to structural compaction if grazed when soils are wet.
+ Moderate recovery of water infiltration following treading.
+ Slightly vulnerability to bypass flow down soil cracks as soil seldom dry when this occurs.
+ Runoff does occur during periods of heavy rain as soils are sloping.
+ Slight leaching losses reflecting imperfect drainage and rolling topography.

IMAGES:

Makarewa profile

Pourakino profile

Waimatuku profile

OPEN ACTIONS:

NO ACTION REQUIRED

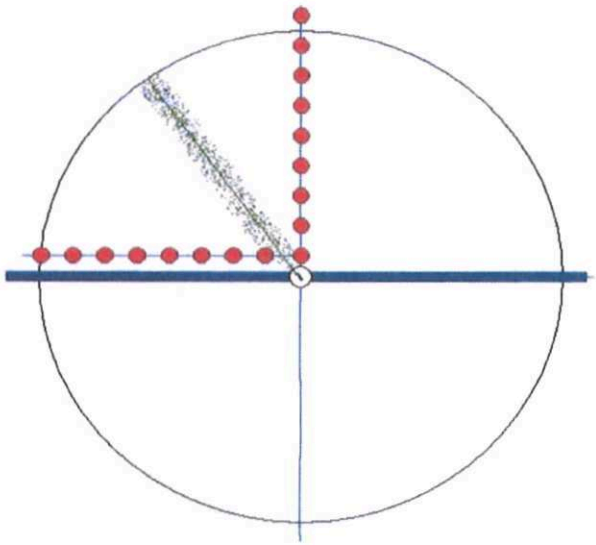
DairyNZ Effluent Spreading Depth Testing Calculator: Sprinklers

Instructions

To use this calculator for measuring the depth of effluent applied from a travelling irrigator, you first need to take some measurements out by the irrigator. You will need some buckets or containers (all the same size) and a measuring jug. All the instructions are outlined in DairyNZ's "A farmer's guide to managing farm dairy effluent: A good practice guide for land application systems". Once you have the data follow the steps stated and enter data into the green boxes as labelled below. This input data will generate the depth and uniformity of the effluent applied. Flow rate and timing measurements are required to assess application rate.

Step 1:	What is your regional council rule or effluent consented depth for effluent applied to land?					10	mm
Step 2:	Choose the shape of your buckets?					Square or Rectangular	
Step 3:	What size is inside the top of your buckets?	Width	242	mm	Length	366	mm
Step 4:	How long was the system pumping effluent?				15	Minutes	Seconds
Step 5:	What was the total width of the spread effluent (Spread diameter)?				29	Metres	
Step 6:	What unit was the flow rate of the effluent sprinkler measured with?					Metres	
Step 7:	What was the average flow rate of the effluent at the sprinkler?						
Step 8:	How many sprinklers were on the effluent line beyond the flow rate measurement?				1	Sprinklers	

Step 9: How much liquid is in each bucket? Start from the centre line and work outwards



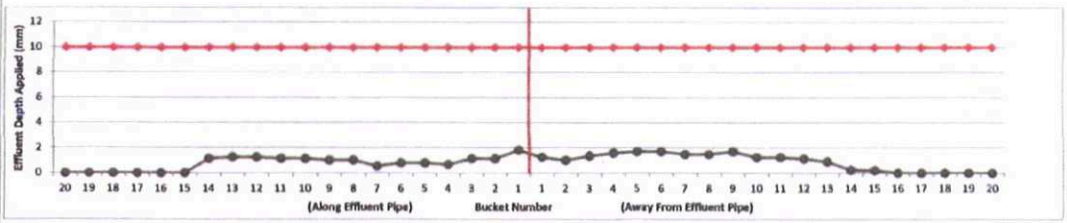
Buckets away from the Effluent Pipe		
20		ml
19		ml
18		ml
17		ml
16		ml
15	20	ml
14	22	ml
13	80	ml
12	100	ml
11	110	ml
10	110	ml
9	150	ml
8	130	ml
7	130	ml
6	150	ml
5	150	ml
4	140	ml
3	120	ml
2	90	ml
1	110	ml

Buckets along the Effluent Pipe

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
						100	110	110	100	100	90	90	50	70	70	60	100	100	160
ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml

Centre Line

Only fill in boxes for buckets used. Zero values will not be calculated.



Step 10: Read the Average Applied Depth, Maximum Application Depth, and Distribution Uniformity.

Average Depth of Effluent Applied	1.14	mm
Maximum Depth of Effluent Applied	1.81	mm
Average Application Rate (Stop Watch Method)	4.55	mm/hour
Distribution Uniformity (UQ)	1.43	

Check your average and maximum depth of effluent applied does not exceed your resource consent or permitted activity rule (this can be checked in the graph in Step 9, ensure the green line is below the red line). Some key points to check the irrigator and improve performance are: check the sprinkler is level, check the effluent pressure at the sprinkler, check or replace nozzles. For more advice check with an accredited effluent professional, contact details available at www.effluentaccreditation.co.nz

Disclaimer:

DairyNZ Limited endeavours to ensure that the information in this publication is accurate and current. However, we do not accept liability for any error or omission. The information that appears in this publication is intended to provide the best possible dairy farm management practices, systems and advice that DairyNZ has access to. It may be subject to change at any time, without notice. DairyNZ Limited takes no responsibility whatsoever for the currency and/or accuracy of this information, its completeness or fitness for purpose.

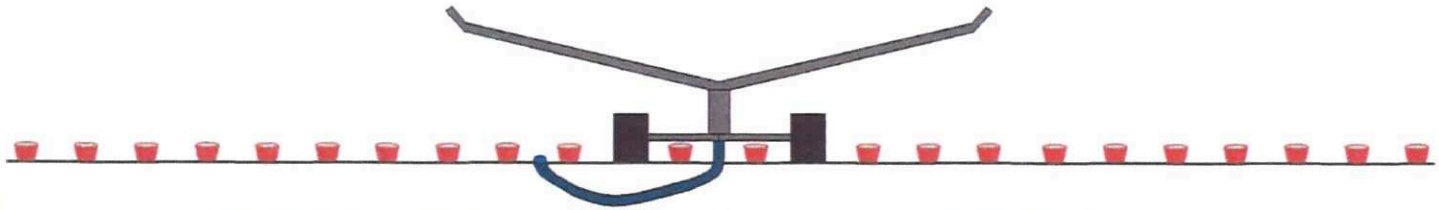
DairyNZ Effluent Spreading Depth Testing Calculator: Travelling Irrigator

Instructions

To use this calculator for measuring the depth of effluent applied from a travelling irrigator, you first need to take some measurements out by the irrigator. You will need some buckets or containers (all the same size) and a measuring jug. All the instructions are outlined in DairyNZ's "A farmer's guide to managing farm dairy effluent: A good practice guide for land application systems". Once you have the data follow the steps stated and enter data into the green boxes as labelled below. This input data will generate the depth and uniformity of the effluent applied. More calculations are required to assess application rate.

Step 1:	What is your regional council rule or effluent consented depth for effluent applied to land?		mm
Step 2	Choose the shape of your buckets?	Square or Rectangular	
Step 3:	What size is inside the top of your buckets?	Width 242 mm	Length 366 mm
Step 4:	How long did it take for the irrigator to pass across the buckets?	40 Min	36 Sec
Step 5:	What was the total width of the spread effluent (Spread diameter)?	51	Metres
Step 6:	What unit was the flow rate of the effluent irrigator measured with?	L/second	
Step 7:	What was the average flow rate of the effluent at the irrigator?		L/second

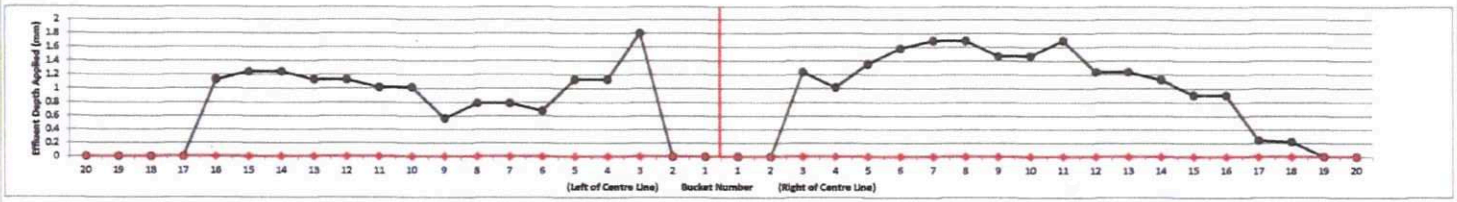
Step 8: How much liquid is in each bucket? Start from the centre line and work outwards



Buckets on the Left Side of the Irrigator Centre Line																	Buckets on the Right Side of the Irrigator Centre Line																			
20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				100	110	110	100	100	90	90	80	70	70	60	100	100	160	0	0	0	0	110	90	120	140	150	150	130	130	150	110	110	100	80	80	22	20		
ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml	ml

Only fill in boxes for buckets used. Zero values are not calculated.

Centre Line



Step 9: Read the Average Applied Depth, Maximum Application Depth, and Distribution Uniformity.

Average Depth of Effluent Applied	1.13	mm
Maximum Depth of Effluent Applied	1.81	mm
Average Application Rate (Flow Rate Method)	-	mm/hour
Distribution Uniformity (UQ)	1.41	

Check your average and maximum depth of effluent applied does not exceed your resource consent or permitted activity rule (this can be checked in the graph in Step 8, ensure the green line is below the red line). Some key points to check the irrigator and improve performance are: check the travelling speed setting, check the effluent pressure at the irrigator, check or replace nozzles. For more advice check with an accredited effluent professional, contact details available at www.effluentaccreditation.co.nz

Disclaimer:
DairyNZ Limited endeavours to ensure that the information in this publication is accurate and current. However, we do not accept liability for any error or omission. The information that appears in this publication is intended to provide the best possible dairy farm management practices, systems and advice that DairyNZ has access to. It may be subject to change at any time, without notice. DairyNZ Limited takes no responsibility whatsoever for the currency and/or accuracy of this information, its completeness or fitness for purpose.

Synthetic nitrogen fertiliser input limit

- What is synthetic nitrogen and how does the N-Cap apply?
  Synthetic nitrogen is the nitrogen part of synthetic nitrogen fertiliser (which also contains other things). The N-Cap applies to the synthetic nitrogen amount, not the fertiliser amount. If the dry weight of the nitrogen is 5 percent or less of the fertiliser it is not counted as synthetic nitrogen fertiliser and the N-Cap does not apply.

- What if I use both synthetic and biological fertilisers?
  Biological nitrogen fertilisers, where the nitrogen content is derived from plants or animals, is not synthetic nitrogen, and therefore the N-Cap does not apply to the application of biological nitrogen (including dairy effluent where there is no added synthetic N). However, where fertilisers are mixed together and include both synthetic and biological nitrogen, they are considered synthetic fertilisers and the N-Cap applies.

- How is a farm defined, does the limit to application of synthetic N fertiliser apply over my runoff as well?
  The nitrogen cap applies to a 'contiguous land holding' 20ha or more (for pastoral use). This is 'one or more parcels of land within a farm'. So, if the run-off is contiguous (joined) with the milking platform, it is all subject to the same N-cap. If the run-off is separate, they must separately meet the N-cap.

- How do I work out whether my farm is a contiguous landholding? What about my support block?
  A contiguous landholding is any block of land which is connected. Contiguous blocks can include multiple uses (such as milking platform and support block as part of the same contiguous block). Contiguous blocks may be crossed by streams, roads or railways. As long as the land on each side of these features is part of the same farming operation (whether owned or leased, in single or multiple titles), it remains contiguous.

  Where land is unconnected, i.e., it is separated by land not part of the same farming operation it is not contiguous and will need to be treated as separate blocks.

- If synthetic nitrogen is applied above 190kg N/ha, can this be averaged or offset by other parts of the farm. Where and how is this stipulated in the NES provisions?
  The NES defines the **nitrogen cap**, "for the land in pastoral land use in a contiguous landholding, means the application of nitrogen at a rate of no more than 190kg/ha/year— (a) to all of that land, as averaged over that land; and (b) to each hectare of that land that is not used to grow annual forage crops."

Pastoral land use means the use of land for the grazing of livestock but doesn't include the grazing on the stubble of a crop that has been harvested after arable land use.

Thus, there is a strict maximum of 190kg N/ha/year on any hectare of pasture. It is possible to put more than 190kg N/ha/year on forage crops but only if offset by applying lower amounts on pasture.

- What about areas that are in crop for some of the year?
  Any crops that are grazed in situ are included in the N-Cap.

  However, crops that are harvested and not grazed (i.e., silage, hay, cut-and-carry) are not subject to the N-Cap. Where you have an area that is grazed for part of the year before being put into non-grazed crop then the N-Cap applies until the last grazing.

  For example, a paddock that is in pasture for part of the year and periodically grazed, but then shut up for silage, would have a period when the N-Cap does not apply. Any synthetic nitrogen applied from after the final grazing, until the date of harvest is not included in the N-Cap. Any synthetic nitrogen applied after silage harvest but pre the next grazing by animals, would be included in the N-Cap. Other types of harvested crops that this might apply to include maize silage, oats for silage, fodder beet which is harvested and feed on a feed pad etc.

  You still need to record the synthetic nitrogen applied, but it does not contribute to the amount that must be below the N-Cap. Therefore, it is also important to accurately record grazing and harvest dates to ensure you can demonstrate it is not part of the N-Cap

- What period does the N-Cap cover and when does it need to be reported?
  The 'N-Cap' of 190kg/ha/year of synthetic nitrogen application commenced on 01 July 2021. The 'N-Cap year' runs from 01 July – 30 June and dairy farmers must report their synthetic nitrogen use to their regional council by the 31 July each year. Therefore, the first report for the period 01 July 2021 – 30 June 2022 will be due by 31 July 2022.

- How do I farm under 190kg N/ha cap?
  The new cap on synthetic nitrogen (N) fertiliser will represent a challenge for many farmers who have been using N boosted grass as a price competitive feed source. The impact for your farm will depend on the amount of N you currently apply (affecting the size of the reduction required), its current use efficiency and how the transition period to low N fertiliser use is managed.

  Working alongside farmers who have been reducing N fertiliser on their properties we have observed that:

  a) many farmers managed to reduce N fertiliser with very little impact on pasture harvested (and profit) by improving N fertiliser use efficiency,

b) others have made good farm systems decisions and re-adjusted feed supply and demand in a way that has little impact on profit

c) some made changes too quickly or at the wrong time generating significant pasture deficits that were filled with more expensive supplements, reducing profit.

Successful transition requires planning and time. It is best to do it gradually, rather than in one big step (especially if the reduction is bigger than 50-60kg N/ha/yr). It is important that clover has time to re-establish and it is actively fixing N to compensate for the lower N from fertiliser. Time is also required to ensure management systems are in place to accommodate the changes. If you are using more than 190kg N/ha/yr you need to act now to minimise any impacts on your system.

For more information, please see Reducing N fertiliser use.

- What needs to be recorded? What level of proof do I need?

Synthetic nitrogen purchases and applications need to be recorded in enough detail to be able to provide the required information to the Regional Council annually. While GPS proof of placement is ideal, this is not mandatory and manual records are satisfactory. As well as recording nitrogen applications, you also need to ensure you record grazing and non-grazing periods in mixed use areas (with some non-grazed crops – see What about areas that are in crop for some of the year).

You need to record your information in way that allows you to provide the following information for each contiguous landholding that includes dairy platform (reporting is not required for contiguous landholdings that do not include dairy platform, but the N-Cap still applies):

  - farm name and ID
  - name of the report provider
  - contiguous landholding details, including its:
    - name or label (for example, A, B, C, as in Figure 2)
    - location
    - area in hectares and, within this:
      - hectares of pastoral use land, in total, and within this: – hectares of annual forage crops – hectares of all other pastoral use land (that is, any other grazed land, including pasture and intermittently grazed land)
      - hectares of other land (that is, all the ungrazed parts of the contiguous landholding)
  - records of all synthetic nitrogen fertiliser purchased during the year
  - percentage of nitrogen that each fertiliser brand contains

- a log of the dates on which synthetic nitrogen fertiliser was applied
- annual rate of synthetic nitrogen application (as kilograms/hectare/year) on:
  - all the pastoral use land, and also separately on each of:
    - annual forage crops
    - other pastoral use land (that is, pasture plus intermittently grazed land)
  - all the other land (that is, the ungrazed parts of the contiguous landholding)

- How do I calculate how much synthetic N I have used?

  Appendix A of the Ministry for the Environments Nitrogen cap guidance for dairy farms outlines a process for calculating how much synthetic N has been used. MfE are anticipating releasing a nitrogen calculator app which will be available at www.environment.govt.nz/nitrogencalculator when available.

  Until the calculator is available, the process outlined in the guidance could be used. If the calculations show that average or per hectare applications will exceed the cap, corrective actions will be needed. The guidance also explains that measuring the nitrogen applied **per hectare** is best done with GPS technologies. If spreaders are used that cannot do this, then the average application rate per hectare should be calculated for each area of pasture where fertiliser has been evenly spread whether that is a paddock, a group of paddocks, or part of a paddock.

- Can I apply to use more than 190kg/ha/year of synthetic N?

  You can apply for resource consent to exceed the N-Cap. There are two options;

  - A 'phased reduction' consent which can only be granted until 01 July 2023 by which time synthetic N use must be able to meet the N-Cap, or
  - A longer term (up to five years) consent for higher N use. To be granted 'good practice' must be demonstrated to limit nitrate loss to what it would have been if only 190kg/ha/year was applied. You will need a suitably qualified expert to prepare evidence of this requirement being able to be met.

  Both the above consents have 'non-complying' status under the Resource Management Act, which means in addition to the above, in order to grant consent, the Council must be satisfied that the effects of applying more than 190kg/ha/year of synthetic nitrogen are no more than minor, or that the activity will comply with all policies and objectives in the regional plan.

  If you are thinking about applying for a resource consent, we suggest that you talk to the consents team at your regional council to find out what will be required. You can find their contact information on your regional council website.

Dairy NZ Digital

Join us on Facebook

Did you know DairyNZ has a Facebook group specifically for farmers and rural professionals in Southland and South Otago?

It's just another way for us to connect with you, and we use the page to share relevant information, upcoming events, and to gather regional intel. There are already 800 people in the group, and we'd love to keep it growing. If you're not a member yet, jump online and join now.

DairyNZ Farmers' Forum Series - it's not too late to get on board

Tackling the bigger issues facing dairy farmers today, the Farmers' Forum Series launched last month, with a further four episodes planned in the first half of 2022. Watch the first episode 'Navigating economic uncertainty' and register for the remainder of the series.

Listen on your favourite podcast platform

Podcast Addict | Apple Podcasts | Google | Spotify | Stitcher | iHeart Radio

Talking Dairy Podcast